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Title: Diamond Amplifier Kickoff Slides

Author(s): Smedley, John Morgan

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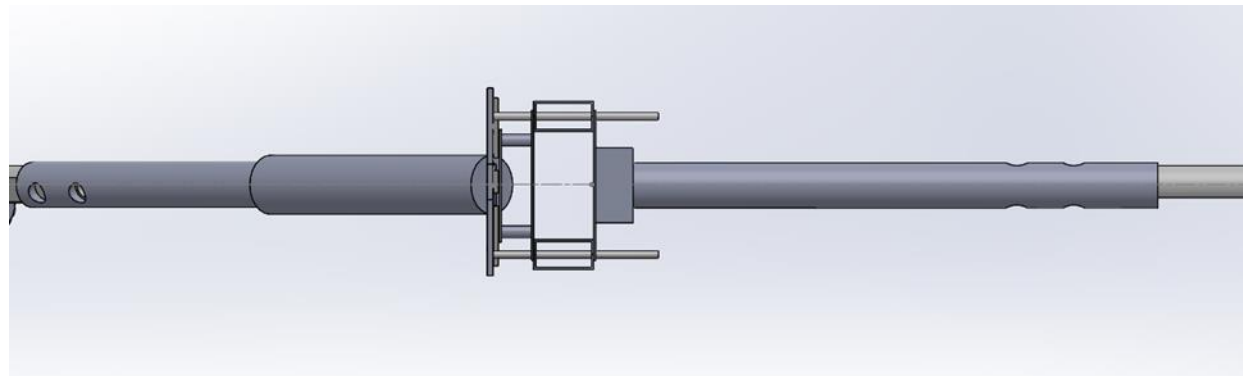
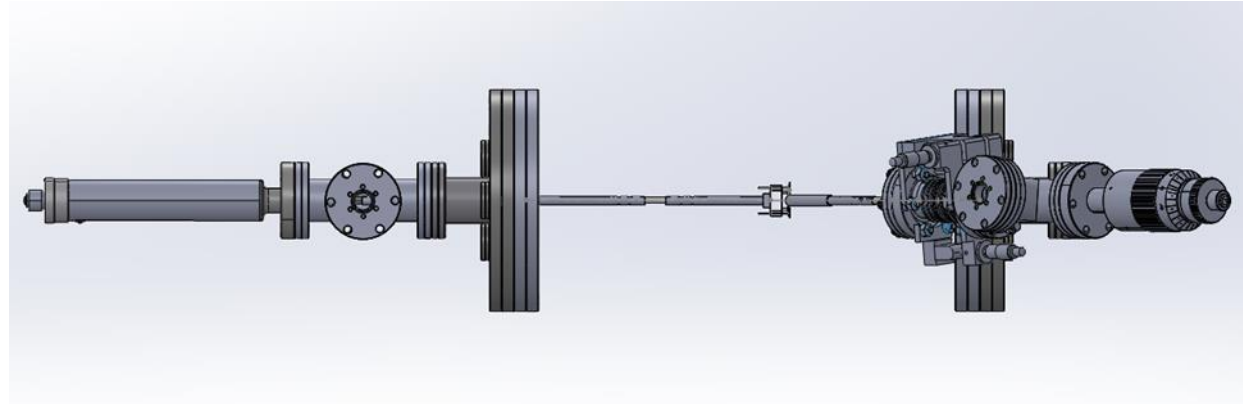
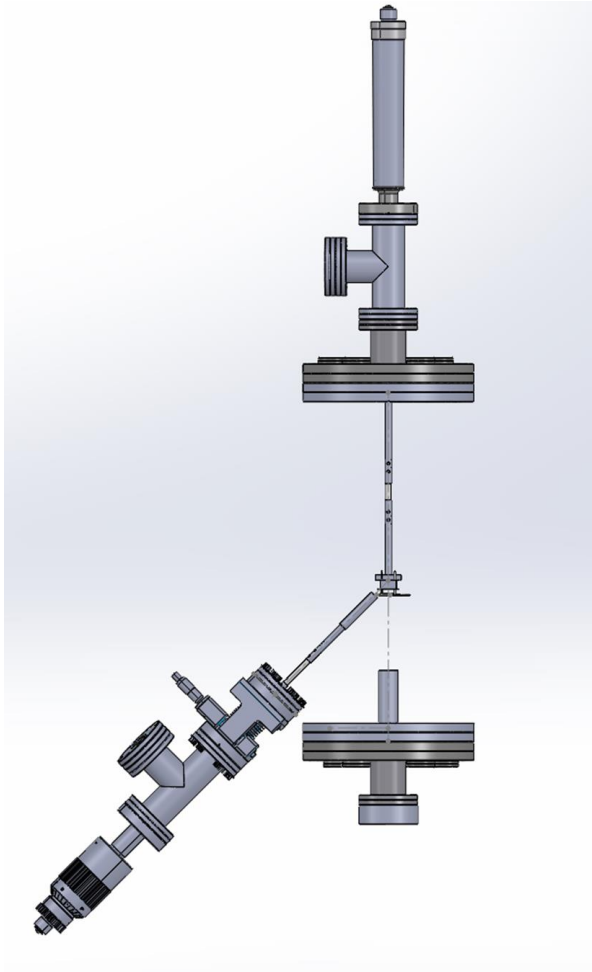
# LANL Amplifier Test Setup

John Smedley, Ryan Fleming, Anna  
Alexander, Erik Muller, Dimitre Dimitrov

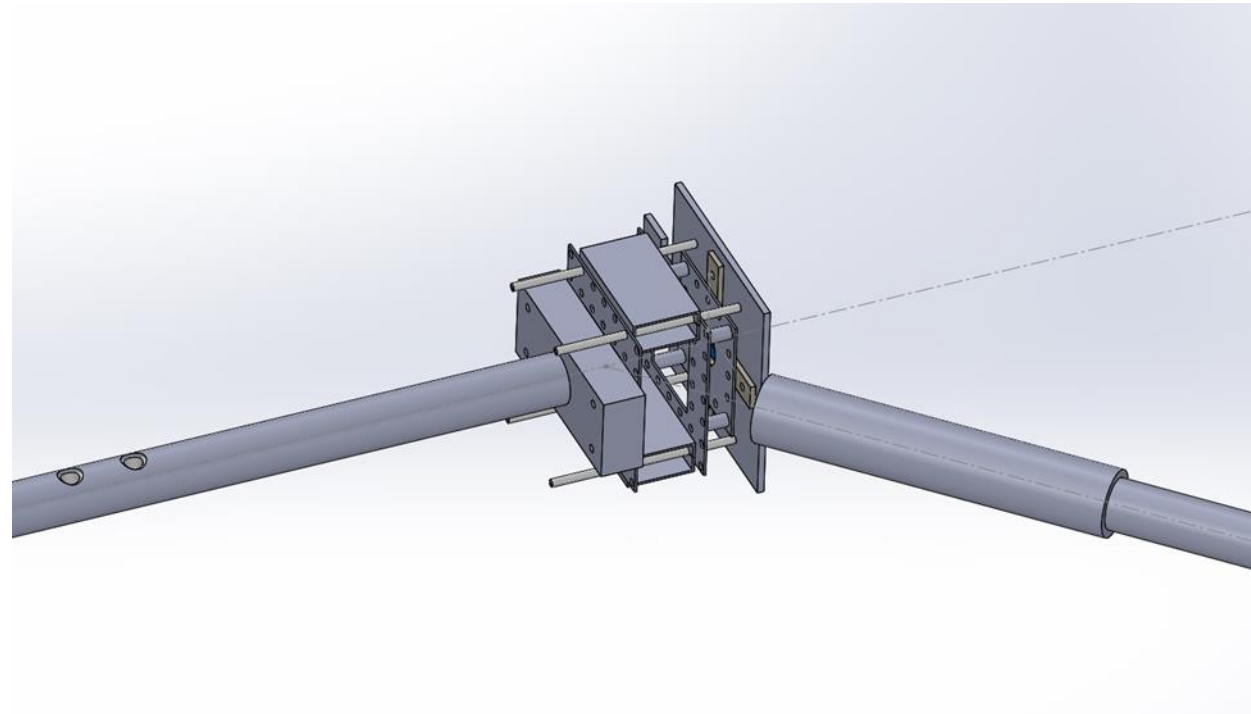
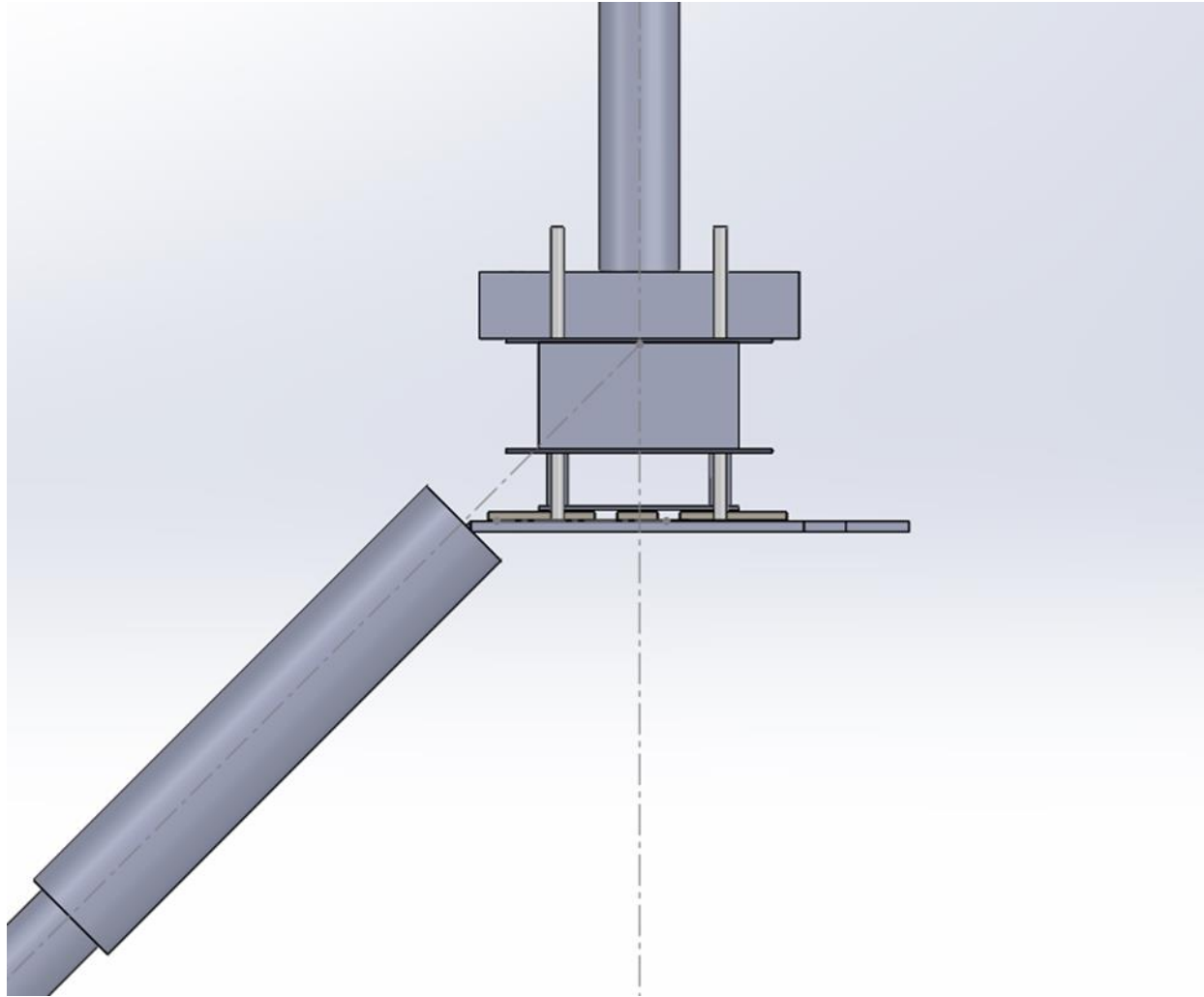


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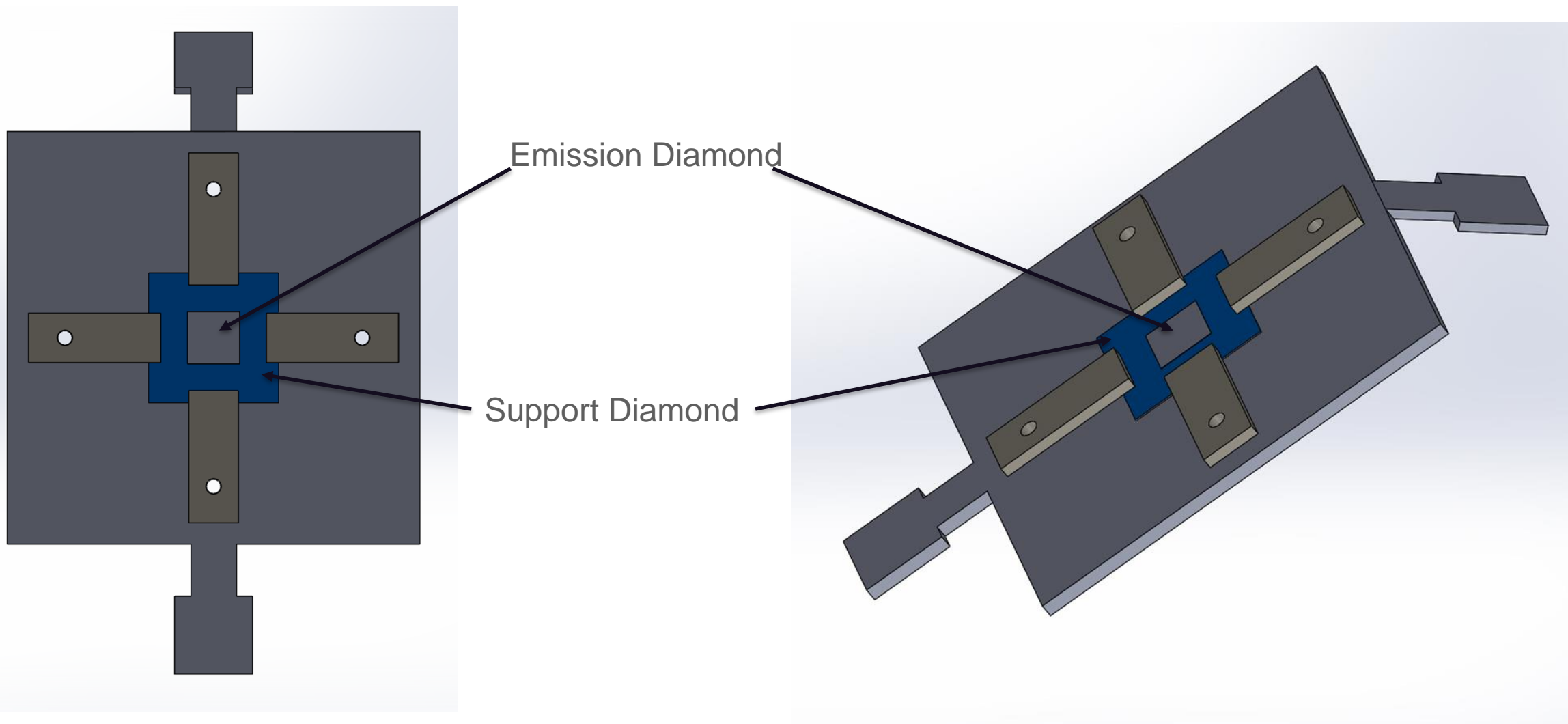
# Design



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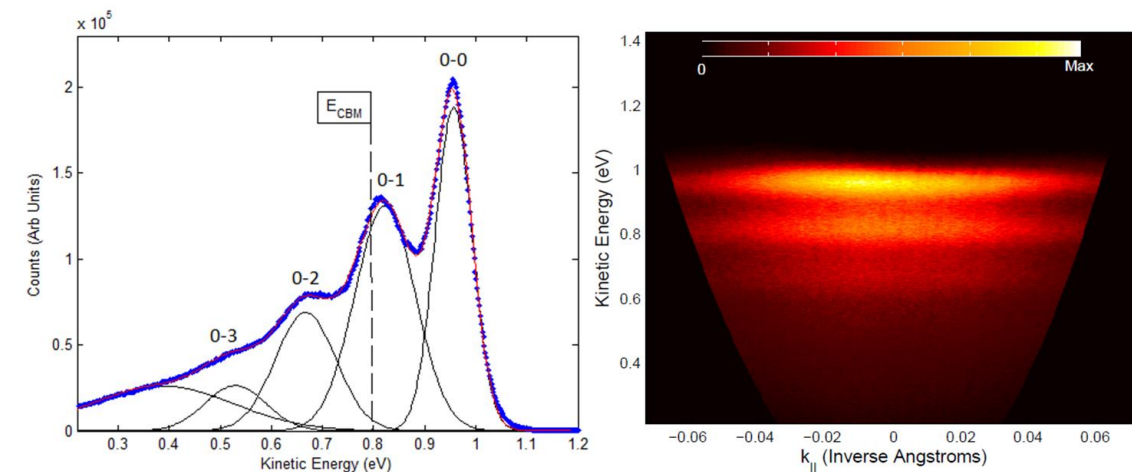
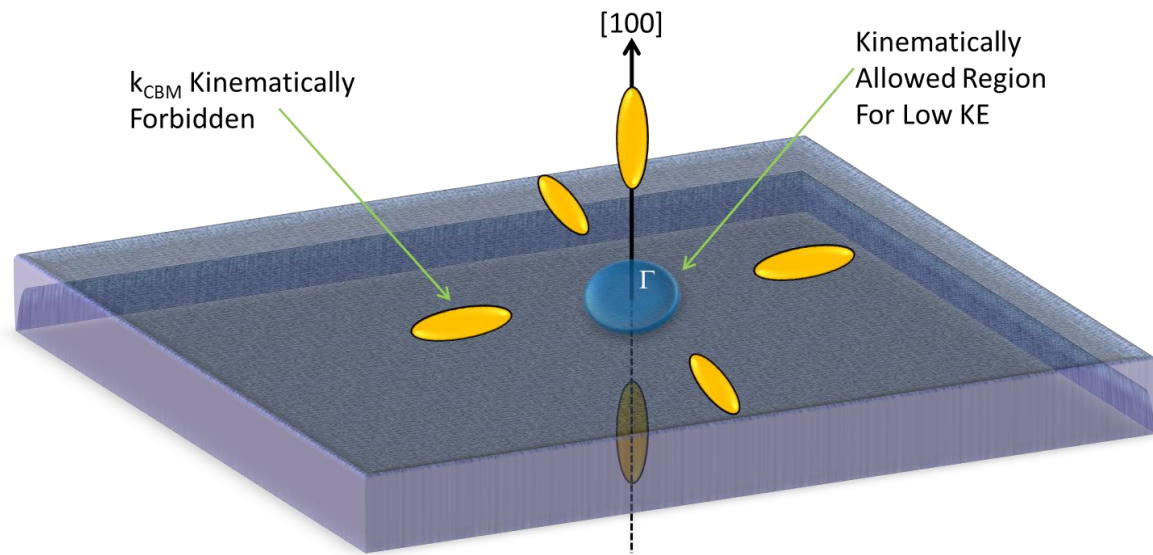


# Design



# Momentum restriction on emission – a source of charge trapping

Projection of k-space onto [100] Surface



left: 6 conduction bands of diamond occupied by excited electrons in the amplifier. Right: ARPES Data on hydrogen diamond. Center: Energy distribution curve, showing the energy of the directly emitted electrons, and those admitted after producing one or more optical phonons to match momentum required for emission.

J. D. Rameau, J. Smedley, E. M. Muller, T. E. Kidd, and P. D. Johnson. Properties of hydrogen terminated diamond as a photocathode. Phys. Rev. Lett., 106(13):137602, Mar 2011.